

AMENDMENTS TO THE SPECIFICATION AND ABSTRACT

In the specification, page 1, after the title, please add the following heading:

BACKGROUND OF THE INVENTION

In the specification, page 1, line 4, please amend the heading as follows:

1. Field of Invention ~~Technical Field~~

In the specification, page 1, line 8, please amend the heading as follows:

2. Description of the Related Art ~~Background Art~~

In the specification, page 1, after line 30, please add the following paragraph:

Patent Reference JP 2003-289495 A discloses a method directed to solving the problem that an entry exceeding a capacity of a storage permissible entry field cannot be stored when writing, onto a memory, index information for a moving image file to be recorded.

In the specification, page 1, line 32, please amend the heading as follows:

Brief Summary of the Invention ~~Disclosure of Invention~~

In the specification, page 2, line 1, please amend the heading as follows:

Problems that Invention is to Solve

In the specification, page 2, paragraph [0004], please amend the paragraph as follows:

~~By the way, Initially, it is noted that~~ it is normal for index information to be recorded all

over a moving image file. Therefore, data size of index information for a file of long reproduction time such as a moving image file tends to increase significantly. Conventionally, since many of moving image files are assumed to be reproduced in a system of large memory resources such as a personal computer, their large data size has not been a serious problem in reading the index information as far as they are reproduced in such personal computer.

In the specification, page 3, line 7, please amend the heading as follows:

~~Means to Solve the Problems~~

In the specification, page 3, paragraph [0008], please amend the paragraph as follows:

In order to achieve the above object, the reproducing apparatus according to the present invention is an apparatus which reproduces a moving image file, ~~the~~ Specifically, the apparatus ~~including~~ includes a table size obtaining unit operable to obtain, from a recording medium, size information of a table which holds index information for the moving image file, a memory for storing index information, a memory size obtaining unit operable to obtain size information of the memory, a calculating unit operable to calculate a thinning-out ratio of the index information so that the size of the table becomes equal to or smaller than the size of the memory, a thinning-out unit operable to thin out the index information based on the thinning-out ratio, and includes a writing unit operable to write the thinned-out index information into the memory. This allows even a reproducing apparatus with a memory of minimum capacity to read the whole index information without losing the positional accuracy of its reproduction point. Accordingly, there is no need to re-read the index information, and therefore fast reproduction operations can be realized.

In the specification, page 4, paragraph [0010], please amend the paragraph as follows:

~~Or, Furthermore,~~ the reproducing apparatus may ~~further~~ include a reproduction start point detecting unit operable to detect a reproduction start point of the moving image file, and the calculating unit may calculate the thinning-out ratio of the index information so that the density of the index information becomes lower before the reproduction start point detected by the reproduction start point detecting unit, and the density of the index information becomes higher after the reproduction start point detected by the reproduction start point detecting unit. This makes the density of the index information lower before the reproduction start point of the moving image file and higher after the reproduction start point. Accordingly, it becomes possible to minimize the decrease in positional accuracy of the reproduction point caused by the thinning-out.

In the specification, page 4, paragraph [0011], please amend the paragraph as follows:

~~Or, In addition,~~ the reproducing apparatus may ~~further~~ include a reproduction mode detecting unit operable to detect a reproduction mode of the moving image file, and in the case where the reproduction mode detecting unit detects an introduction reproduction mode for searching for the beginning of the moving image file, the calculating unit may calculate the thinning-out ratio of the index information so that the density of the index information becomes higher in an introduction reproduction section, and the density of the index information becomes lower in a section other than the introduction reproduction section. This makes the density of the index information higher in the introduction reproduction section, and lower in a section other than the introduction reproduction section, and therefore makes it possible to minimize the decrease in positional accuracy of the reproduction point caused by the thinning-out.

In the specification, page 5, paragraph [0012], please amend the paragraph as follows:

~~Or,~~ Moreover, the reproducing apparatus may ~~further~~ include an operational preference detecting unit operable to detect an operational preference of a user, and in the case where the operational preference detecting unit detects that the user uses a specific reproduction function with a predetermined frequency or higher, the calculating unit may calculate the thinning-out ratio of the index information so that the density of the index information becomes higher in a reproduction section which is required when the reproduction function is used, and the density of the index information becomes lower in a reproduction section which is not required when the reproduction function is used. This makes the density of the index information higher in the reproduction section which is required when a specific reproduction function is used, and lower in the reproduction section which is not required when such reproduction function is used, in the case where the user uses the specific reproduction function with a predetermined frequency or higher. Therefore, it becomes possible to minimize the decrease in positional accuracy of the reproduction point caused by the thinning-out.

In the specification, page 6, line 23, please amend the heading as follows:

~~Effects of the Invention~~

In the specification, page 8, line 25, please amend the heading as follows:

~~Numerical References~~

In the specification, pages 8-9, paragraph [0020], please amend the paragraph as follows:

- S40, S100 Table size obtaining unit
- S41, S101 Calculating unit
- S42, S102 Table size obtaining unit
- S43, S103 Holding unit
- S44, S104 Thinning-out unit
- S45, S105 Writing unit
- S46, S106 Input unit
- S47 Reproducing unit
- S107 File characteristic detecting unit
- S108 Reproduction start point detecting unit
- S109 Reproduction mode detecting unit
- S110 Operational preference detecting unit
- S111 Selecting unit

In the specification, page 9, line 8, please amend the heading as follows:

Best Mode for Carrying Out Detailed Description of the Invention

In the specification, page 11, paragraph [0030], please amend the paragraph as follows:

FIG. 2 is a functional block diagram of the main parts of the optical disk reproducing apparatus to which the present invention is applied, and more specifically, it shows the functions realized by the CPU 505 in FIG. 1. This optical disk reproducing apparatus includes, in a functional sense, a table size obtaining unit S40, ~~an a~~ calculating unit S41, a memory size

obtaining unit S42, a holding unit S43, a thinning-out unit S44 and a writing unit S45.

In the specification, page 15, paragraph [0046], please amend the paragraph as follows:

Here, in the case where the size of the index information table is larger than that of the working memory 506, the calculating unit S41 calculates the thinning-out ratio of index entries for making the size of this table equal to or smaller than that of the working memory 506 (Yes in S4, and to S5). This “calculating the thinning-out ratio” specifically means a calculation of the value of n in FIG. 6. It should be noted that no thinning-out processing is performed in the case where the size of the index information table is smaller than that of the working memory 506 (No in S4), such that if the table size is not larger than the memory size, the index information is simply read (S9) and then written to the working memory 506 (S10).

In the specification, page 17, paragraph [0056], please amend the paragraph as follows:

FIG. 10 is a functional block diagram of the main parts of the reproducing apparatus in the second embodiment. Since the table size obtaining unit S100, the memory size obtaining unit S102, the holding unit S103, the thinning-out unit S104, the writing unit S105, the input unit S106 are same as those in the above first embodiment, a detailed description thereof is not repeated here. The file characteristic detecting unit S107, the reproduction start point detecting unit S108, the reproduction mode detecting unit S109, the operational preference detecting (judging) unit S110 and the calculating unit S101 are described below.

In the specification, page 19, paragraph [0064], please amend the paragraph as follows:

Using these characteristics, the file characteristic detecting unit S107 detects the reproduction time information of the whole moving image file recorded on an optical disk when reproducing the optical disk. In the case where the detected total reproduction time is a predetermined time or longer (for example, 90 to 180 minutes), it judges that the moving image file recorded on the optical disk is a movie and controls, based on the characteristic diagram of FIG. 11, how much index information should be thinned out by the CPU 505. More specifically, in the case where a moving image file to be reproduced is a long-time moving image file such as a movie, the CPU 505 performs a unique weight-based thinning-out as indicated by 603 in FIG. 11. It becomes possible to store all of the post-thinned-out index entries into the working memory 506 of the reproducing apparatus, by adjusting the thinning-out rate so that the value of 604 is maintained at C/n.

In the specification, page 26, line 30, please amend the heading as follows:

~~Industrial Applicability~~